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Nutritive and non-nutritive mineral composition of pink salt available in Australia

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Nutritive and non-nutritive mineral composition of pink salt available in Australia

Flavia Fayet-Moore

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DISCLOSURES

Dr Flavia Fayet-Moore serves as:

- Olive Wellness Institute Advisory Panel
- Consultant to Nutrigenomix Inc
- Founding board member of the Australasian Society of Lifestyle Medicine

NRAUS receives research funding from government, industry and NGO sources.

This study received no external funding and was self funded by NRAUS.

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BACKGROUND

Pink salt: Any salt that is pink in colour

Increasing popularity of pink salt

Claims of high mineral content and health benefits

"Nutritionally superior to white salt"

Concerns for sodium intake at high levels of pink salt intake

Necessary for function [1]

- ✓ Extra-cellular fluid volume
- ✓ Nerve conduction
- ✓ Muscle function

High sodium intake [2]

- ↑ Hypertension
- ↑ Stroke, CVD and CKD risk

World Health Organisation recommends less than 2g sodium/day (5g salt) [3]

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1. Author, Abbrev Journal Year;vol(issue):Pg

WHAT IS ACTUALLY IN PINK SALT?

Few studies conducted internationally

Variety of essential nutrients
Iron, Zinc, Calcium [1,2,3]

Some impurities and heavy metals
Arsenic, Lead, Cadmium [2]

No research on commercially available samples

No research on samples available in Australia

Given the increasing **consumer interest** and **potential for harm**, information on **pink salt is necessary** for health professionals and consumers **to be able to make informed choices** on their salt intake.

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METHODS

31 commercially available pink salt samples purchased from retailers in 2 metropolitan cities and 1 regional town

1 iodised salt sample purchased as a control

Country of origin, price ($/100g), brand, and salt form (finely ground, flakes, coarse/rock) recorded

Samples de-identified for analysis

Colour coded independently by 3 independent researchers (no colour, light, medium, dark pink)

Samples analysed by mass spectrometry in a NATA accredited laboratory at Southern Cross University

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MINERALS ANALYSED

Nutritive Minerals

Calcium
Chromium
Copper
Iron
Magnesium
Manganese
Molybdenum
Phosphorus
Potassium
Selenium
Sodium
Zinc

Nutritionally required for bodily functions

Non-Nutritive Minerals

Aluminium
Arsenic
Barium
Boron
Cadmium
Cobalt
Lead
Mercury
Nickel
Silicon
Silver
Sulfer
Vanadium

No nutritional requirements

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DESCRIPTION OF SAMPLES

Pink Salt origin

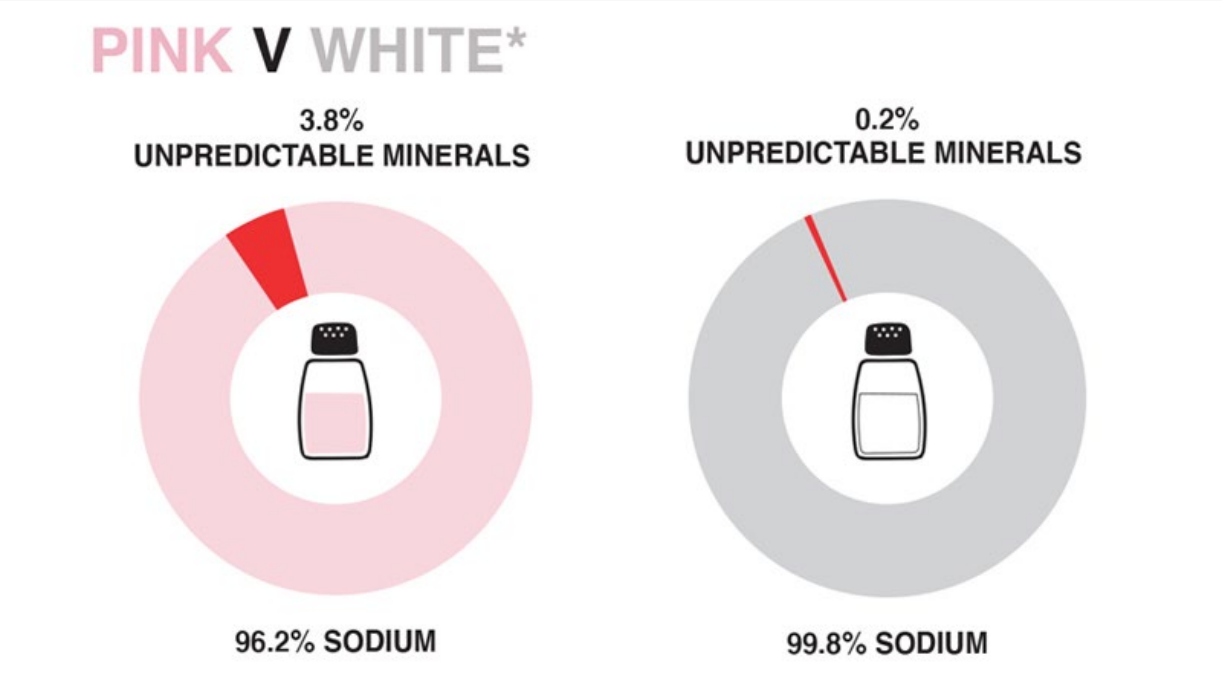
Himalayas:	n = 27
Australia:	n = 3
Peru:	n = 1

Pink Salt form

Fine:	n = 14
Coarse:	n = 15
Flakes:	n = 1

Pink Salt Colour:

No colour:	n = 2
Light pink:	n = 5
Medium pink:	n = 11
Dark pink:	n = 13



* Percentages derived from the 25 minerals tested in the study

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MINERAL COMPOSITION

Top 3 non-sodium nutritive minerals found in pink salt:

Magnesium	5 – 12,000 mg/100g
Calcium	53 – 574 mg/100g
Potassium	10 – 453 mg/100g

Non-nutritive minerals:

100% contain sulfur
93% contain aluminium
94% contain lead
83% contain silicon

Toxic levels of lead found in one imported sample of **2.59 mg/kg**,

Exceeds FSANZ limit of 2.0 mg/kg

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PREDICTORS OF MINERAL CONTENT

Samples with higher nutritive minerals also had higher non-nutritive minerals

Himalayan Origin, and darker colour predict higher non-sodium mineral content

Australian samples had lower levels of both nutritive and non-nutritive minerals

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IMPLICATIONS

Pink salt is **not** healthier than any other salt

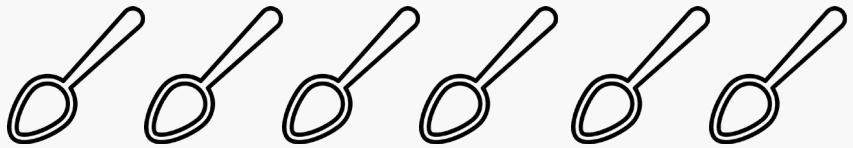
Pink salt contains higher levels of nutritive AND non-nutritive minerals

One sample contained toxic levels of lead (No safe level for lead intake)

To make a meaningful contribution to nutrient intake, over **SIX** teaspoons of salt a day is needed

At this level, sodium will exceed WHO recommendations by **592 %**

Pink salt should be consumed within WHO recommendations of < 5 g salt each day



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STRENGTHS AND LIMITATIONS

This **world-first** study measured and reported the mineral composition of commercially available pink salts. This research provides important information to allow health care providers, consumers, and policy makers make informed choices.

Although a representative sample was attempted, there may be selection bias due to where samples were purchased

Colour coding was subjective and may be prone to misclassification bias

Some minerals of interest were unable to be measured (Fluorine, Iodine)

Samples were only measured once by one laboratory. Where two products were analysed from the same brand, findings were consistent, strengthening the analysis

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RECOMMENDATIONS

Recommendations for practice:

- Salt (including pink) consumption should not exceed 5 g/day (2000 mg/day sodium) from all sources
- Iodised salt is the only salt to meet a nutritional requirement

Regulatory considerations:

- Lead levels exceeded safety limit for one imported sample

Flavourful salt replacers:

- Herbs (fresh or dried)
- Spices
- Umami foods (tomato, parmesan)
- Flavoured vinegars and oils

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Thank You

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